
रासायनिक प्रतिरोधी मोर्टार — विशिष्टि

भाग 3 सल्फर प्रकार

(पहला पुनरीक्षण)

Chemical Resistant Mortars — Specification

Part 3 Sulphur Type

(First Revision)

ICS 91.100.10

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भारतीय मानक ब्यूरो

BUREAU OF INDIAN STANDARDS

मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002

MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG

NEW DELHI - 110002

www.bis.gov.in www.standardsbis.in

FOREWORD

This Indian Standard (Part 3) (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Flooring, Wall Finishing and Roofing Sectional committee had been approved by the Civil Engineering Division Council.

Sulphur mortars have good resistance against most of the acids except concentrated oxidizing acids, but have very poor resistance to alkali. Sulphur mortars are used for jointing acid resistant bricks or tiles in floors, in the lining of storage tanks, pickling tanks, sumps, drains, etc. Special care shall be taken that sulphur mortar is not overheated during the heating process. For the actual method of use of sulphur mortars, IS 4442 may be referred.

The standard was first published in 1968. In this first revision, following modifications have been incorporated;

- a) Storage clause has been modified;
- b) Requirements have been updated in SI units;
- c) Packing and marking clause has been updated;
- d) BIS certification marking clause has been modified; and
- e) Amendment has been incorporated.

This standard is one of the series of standards on chemical resistant mortars; the others being:

- Part 1 Silicate type
- Part 2 Resin type

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

This standard contributes to the United Nations Sustainable Development Goal 9. ‘Industry, Innovation and infrastructure, build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation’.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

CHEMICAL RESISANT MORTARS — SPECIFICATION

PART 3 SULPHUR TYPE

(First Revision)

1 SCOPE

This standard specifies the requirements for sulphur type chemical resistant mortars for bonding chemical resistant masonry units.

2 REFERENCES

The standards given below contains provisions, which through reference in this text, constitute the provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of these standards:

<i>IS No.</i>	<i>Title</i>
IS 460 (Part 1) : 2020	Test Sieves — Specification: Part 1 Wire cloth test sieves (<i>fourth revision</i>)
IS 4442 : 1980	Code of practice for use of sulphur type chemical resistant mortars (<i>first revision</i>)
IS 4456 (Part 2) : 1967	Methods of test for chemical resistant mortars: Part 2 Sulphur type

3 TERMINOLOGY

For the purpose of this standard, the following definition shall apply.

3.1 Sulphur Type Chemical Resistant Mortars —

It is an inorganic compound consisting of an

intimate mixture of sulphur and inert filler, such as silica or carbon. Small amounts of chemically-resistant inert modifying agents may be added.

4 CHEMICAL COMPOSITION

4.1 The sulphur mortar shall conform to the following requirements for chemical composition:

Sulphur	: 55 percent to 70 percent
Inert filler	: 30 percent to 45 percent

The sulphur content of the sulphur mortar shall be determined as per procedure given in IS 4456 (Part 2).

4.2 On a sieve analysis of the filler the percentage material retained on different sieves shall not exceed the following:

<i>Sieve Designation</i>	<i>Percentage Material Retained by Mass</i>
425 micron IS Sieve	5.0 <i>Max</i>
150 micron IS Sieve	10.0 <i>Min</i>
75 micron IS Sieve	35.0 <i>Min</i>

NOTE — For other fillers, the requirements given in SI No. (vii) of Table 1 shall apply. For sieve designation, see IS 460 (Part 1).

If required by the user, the manufacturer shall give a certificate that the filler conforms to the grading specified in 4.2.

Table 1 Physical Requirements of Sulphur Type Chemical Resistant Mortars

(Clauses 5, A-3.2 and A-4)

Sl No.	Characteristics	Requirement
(1)	(2)	(3)
i)	Compressive strength at 48 h, MPa, <i>Min</i>	28
ii)	Tensile strength at 48 h, MPa, <i>Min</i>	3
iii)	Flexural strength at 48 h, MPa, <i>Min</i>	7
iv)	Bond strength at 48 h, MPa, <i>Min</i>	1
v)	Proportion of original strength retained after thermal shock test, percent, <i>Min</i>	20.0
vi)	Moisture absorption, percent, <i>Max</i>	1.0
vii)	Tendency of aggregate to settle, variation from unity, <i>Max</i>	0.6

5 PHYSICAL REQUIREMENTS

The sulphur mortars shall satisfy the requirements given in Table 1 when tested in accordance with IS 4456 (Part 2).

6 CHEMICAL RESISTANCE REQUIREMENTS

The limits of chemical resistance may be mutually agreed to by the purchaser and the supplier when tested as per procedure given in IS 4456 (Part 2). A general guide of chemical resistance of sulphur type mortars to various type of substances is given IS 4442.

7 STORAGE

The storage life of sulphur type chemical resistant mortars shall be not less than 2 years. It shall be placed in a dry place away from fire and sunlight.

8 SAMPLING

The method of drawing representative samples of

the material and the criteria for conformity shall be as given in Annex A.

9 PACKING AND MARKING

9.1 The sulphur mortars shall be suitably packed in wooden carton.

9.2 The following information shall be marked legibly and indelibly on each package:

- a) Name of the manufacturer or his trade-mark;
- b) Date of manufacture/batch No.;
- c) Net weight;
- d) Storage instructions; and
- e) Shelf life.

10 BIS CERTIFICATION MARKING

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

ANNEX A*(Clause 8)***SAMPLING PROCEDURE FOR ACCEPTANCE TEST****A-1 LOT**

A-1.1 The quantity of sulphur mortar of the same type, from the same manufacturing unit shall be offered for inspection at one time. Every batch of sulphur mortar manufactured shall be offered for inspection. The maximum quantity of sulphur mortar in a lot shall not be more than 5 000 kg.

A-1.2 Samples shall be selected and tested for each lot separately for ascertaining its conformity to the requirements of the specification.

A-2 SELECTION

In case the sulphur mortar in a lot is packed in a number of containers; as a first step suitable number of containers shall be selected from the lot. However, the number of containers thus selected shall not be less than 5 percent of the total number of containers in the lot. Equal quantities of material shall be taken from each container selected and mixed together to give a sample for the lot.

A-3 CRITERIA FOR CONFORMITY

A-3.1 The samples shall be placed in moisture proof air-tight containers. They shall be labeled with full identification, such as the supplier's name, the lot number, the date of sampling, etc.

A-3.2 The samples shall be tested for all the requirements given in Table 1 of this standard.

A-3.3 A lot shall be considered as having satisfied the requirements of the specification if the results for all the tests satisfy the relevant requirements of the specification.

A-4 RE-TEST

If the samples, when tested, do not comply with the requirements given in Table 1, a further similar set of samples shall be taken at random from the same batch and subjected to the tests. If any of the samples of the second test fails to comply with the requirements of Table 1, then the entire sulphur mortar in the batch represented by the samples shall be rejected.

ANNEX B

(Foreword)

COMMITTEE COMPOSITION

Flooring, Wall Finishing and Roofing Sectional Committee, CED 05

<i>Organization</i>	<i>Representative(s)</i>
In Personal Capacity (<i>L/109, Sarita Vihar, New Delhi - 110076</i>)	SHRI ASHOK KHURANA (<i>Chairperson</i>)
Acropolis Institute of Technology and Research, Indore	DR SATISH KUMAR SHARMA SHRI JAYANT AWASTHY (<i>Alternate I</i>) SHRI DEEPSHIKHA SHUKLA (<i>Alternate II</i>)
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CSIR - Central Glass and Ceramic Research Institute, Kolkata	DR PARAG MANGALBHAI SOLANKI DR PARVESH AGARWAL (<i>Alternate I</i>) DR ASHA T. ANIL (<i>Alternate II</i>)
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<i>Organization</i>	<i>Representative(s)</i>
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MYK Laticrete India, Hyderabad	DR P. ARJUNAN SHRI N. RADHAKANTH (<i>Alternate</i>)
National Council for Cement and Building Materials, Ballabgarh	SHRI AMIT TRIVEDI SHRI SANJAY MUNDRA (<i>Alternate I</i>) SHRI AMIT SAGAR (<i>Alternate II</i>)
National Test House, Kolkata	SHRI D. V. S. PRASAD DR SOMIT NEOGI (<i>Alternate</i>)
NTC Tiles LLP, Panchkula	SHRI PREM CHAND GUPTA SHRI SUSHANT GUPTA (<i>Alternate</i>)
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Plastindia Foundation, Mumbai	SHRI ARVIND GOENKA DR E. SUNDARESAN (<i>Alternate</i>)
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Research Designs and Standards Organization, Lucknow	EXECUTIVE DIRECTOR (WORKS) SHRI ASHUTOSH KUMAR (<i>Alternate</i>)
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Shriram Institute of Industrial Research, New Delhi	SHRI MUKESH GARG SHRI RAMAN DHYANI (<i>Alternate</i>)
Steuler Industrial Solution (India) Private Limited, Vadodara	SHRI CHIRAG K. BAXI SHRI BHARATBHAI D. PATEL (<i>Alternate</i>)

<i>Organization</i>	<i>Representative(s)</i>
In Personal Capacity (<i>N 96, Ground Floor, Mayfield Garden, Sector-51, Gurugram - 122018</i>)	SHRI R. D. MATHUR
BIS Directorate General	SHRI ARUNKUMAR S., SCIENTIST 'E'/DIRECTOR AND HEAD (CIVIL ENGINEERING) [REPRESENTING DIRECTOR GENERAL (<i>Ex-officio</i>)]

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SHRI ABHISHEK PAL
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(CIVIL ENGINEERING), BIS

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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402

Website: www.bis.gov.in

Regional Offices:

	Telephones
Central : 601/A, Konnectus Tower -1, 6 th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	{ 2323 7617
Eastern : 8 th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	{ 2367 0012 2320 9474
Northern : Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	{ 265 9930
Southern : C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	{ 2254 1442 2254 1216
Western : Plot No. E-9, Road No.-8, MIDC, Andheri (East), Mumbai 400093	{ 2821 8093

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